

## **Historic, Archive Document**

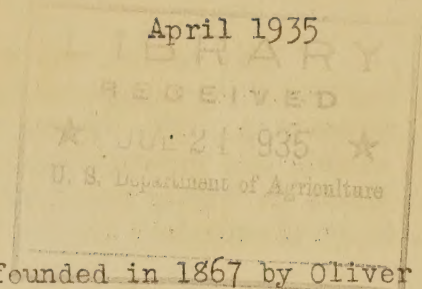
Do not assume content reflects current  
scientific knowledge, policies, or practices.



1. a  
ag 8 Eh

## THE GRANGE

Everett E. Edwards



The Grange, or Patrons of Husbandry, was founded in 1867 by Oliver Hudson Kelley and six associates, all but one of whom were Government employees in Washington, D. C. The purpose as emphasized by the founders was to give American farmers opportunities for social intercourse and intellectual development.

During the agricultural depression of the seventies the Grange grew rapidly. From the spring of 1873 to the fall of 1874 the number of local granges rose from 3,360 to 20,365, most of them being in the Middle West and in the South. It was during this decade that the Grange gave its name to and became a significant factor in an agricultural uprising, the Granger Movement. In essence the movement was a revolt against the rapidly growing industrialism which threatened the pioneer democracy of America. The grange as an organization was nominally non-political, but it served as a medium of organization and discussion and prepared the way for the rise of independent, anti-monopoly farmers' parties in eleven western states. The main result of this political upheaval was the acts regulating railroad rates in Illinois, Minnesota, Iowa, and Wisconsin. The testing of these laws before the United States Supreme Court in the "granger cases" laid the basis for future railroad regulation.

The early Granges established purchasing agencies and cooperative stores in an effort to eliminate middlemen. Some of these cooperatives did a large business and were successful for a time. Opposition of local merchants, together with the inexperience of the Grange agents, hampered these cooperative attempts. The experiments in manufacturing agricultural machinery on a large scale were failures. See Arthur H. Hirsch, "Efforts of the Grange in the Middle West to Control the Price of Farm Machinery, 1870-1880," in the Mississippi Valley Historical Review, 15:473-496 (March 1929). Fear of responsibility for debt led to the disbandment of granges, and in the late seventies the order declined rapidly, especially in those states where it had formerly flourished most vigorously.

In the seventies and eighties the Grange program was denounced as radical and visionary. Yet the Grange advocacy of railroad regulation, antitrust laws, income taxes, popular election of United States Senators, parcel post, and postal savings banks did much to secure the enactment of measures securing these reforms and improvements. Another contribution of the Grange during its early period was the demonstration of the idea that farmers could advance their interests by organization. The independent political parties associated with the Grange forced the major parties to give more consideration to the farmers' needs. Women had equal rights with men as members in the Grange, and as early as 1874, the Grange endorsed the principle of equal rights for women.



The social and intellectual objectives of the founders were not entirely overshadowed by economic and political issues during the seventies. The Grange meetings, picnics, and festivals relieved the social and intellectual isolation of rural life. After the seventies these features received major emphasis, and the order may be said to have flourished in the Eastern States.

The Grange was active in promoting agricultural research through experiment stations and in encouraging education in scientific agriculture and home economics, and continues its interest in these matters. It also uses its influence in State and national politics.

The membership was 858,050 in 1875, and 124,420 in 1880. During the eighties it remained at about the latter figure. Beginning in the nineties the Grange grew steadily. In 1927 the membership was about 600,000, concentrated largely in New England, Ohio, Michigan, Kansas, and the Pacific Northwest.

The best complete histories of the Grange are those by Thomas C. Atkeson, Semi-centennial History of the Patrons of Husbandry (New York, 1916), and Outlines of Grange History (Washington, 1928). The best studies of the Granger movement are Solon J. Buck's books, The Granger Movement (Cambridge, Mass., 1913), and Agrarian Crusade (New Haven, 1921), ch. 1-5. A good brief account is in Edward Wiest, Agricultural Organization in the United States (Lexington, Ky., 1923), p. 365-431. The influence in Canada is given in L. A. Wood, A History of Farmers' Movements in Canada (Toronto, 1924). A complete list of references on the Grange and the Granger Movement is given in Everett E. Edwards, "A Bibliography of the History of Agriculture in the United States," issued as the United States Department of Agriculture Miscellaneous Publication 84, p. 215-217, 257-258.

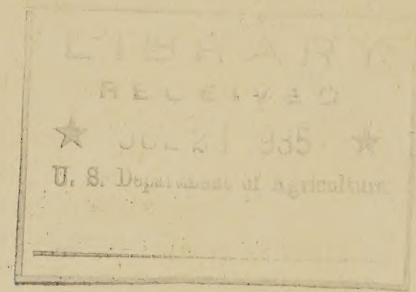
\* \* \* \* \*



7.4  
ag 8/15/45

## THE FARMERS' UNION

Everett E. Edwards



The Farmers' Educational and Co-operative Union of America was founded in 1902 at the little town of Point, Texas. Its chief founder, Newt Gresham, and others had been organizers and leading officials in the Farmers' Alliance.

The members of the Farmers' Union condemned the demand for cheap food at the expense of their standard of living and hoped to improve conditions, partly by securing the enactment of favorable legislation, but primarily by developing cooperatives and credit organizations.

The first declaration of principles, as set forth in the charter granted to the initial union, was to the effect that marketing, better prices, and fraternal considerations were the objects. An elaborate constitution was adopted in 1906. Its preamble is a statement of purposes. (See Edward Wiest, Agricultural Organization in the United States, p. 485.)

During its first years, the Farmers' Union focused its attention mainly on the marketing of cotton. It fixed a minimum price below which the farmer was advised not to sell. This plan of action was begun as early as 1904. Following 1905, it joined the Southern Cotton Growers' Protective Association, the Southern Bankers' Association, and the cotton exchanges of New York City and New Orleans in their efforts to reduce cotton acreage. The Unions built warehouses for cotton and extended credit. Some direct selling of cotton was also undertaken. The Union was a pioneer in the movement to secure the grading and sampling of cotton.

The Union maintains that the existing economic organization must be drastically changed; the farmers must go into business and retain all profits. Accordingly the Union has interested itself primarily in promoting cooperatives, including the distribution of farm supplies and the sale of farm produce, as well as in fire, livestock, hail, and life insurance companies, and dairying and canning cooperatives.

The Union has always maintained friendly relations with labor organizations. Its officials have stated that they seek labor support for a legislative program beneficial to both groups.

The Farmers' Union grew rapidly during its early years. By 1905 State unions had been established in Texas, Arkansas, Alabama, Georgia, and Louisiana. In 1910 its total individual membership was about 121,800. In 1919 it had about 140,000; in 1930, 91,109. At present its center of strength is Oklahoma, Kansas, Nebraska, Iowa, the Dakotas, Colorado, and Montana.



Membership is limited to whites and may include farm tenants, farm owners, country mechanics, physicians, clergymen, and newspaper editors who support Union policies. Bankers, merchants, and lawyers are ineligible. Until 1917 the Union was a secret order.

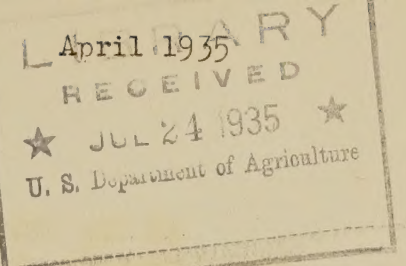
For additional details consult: C. S. Barrett, The Mission, History, and Times of the Farmers' Union (Nashville, Tenn., 1909); Commodore B. Fisher, The Farmers' Union (Lexington, Ky., 1920); United States Commission on Corporations, Report on Cotton Exchanges (1908); and Edward Wiest, Agricultural Organization in the United States, p. 475-502 (Lexington, Ky., 1923).

\* \* \*



1.9  
ag 81 Eh

THE AMERICAN FARM BUREAU FEDERATION  
Everett E. Edwards



The American Farm Bureau Federation developed directly out of the activities of the educational extension forces of the States and the Nation. Those who unconsciously laid the foundation for the Bureau had no thought of starting a widespread farmer movement designed to promote and foster business undertakings, to shape and guide legislation affecting agriculture, and to investigate such subjects as the tariff and taxation.

The basis of the organization was the county forces, committees or bureaus, back of the county agricultural agent system which had developed rapidly just before the World War, and which during the war years became practically universal in the United States under the stimulus of emergency food needs.

The first farm bureau was organized in Broome County, New York, through the initiative of the Binghamton Chamber of Commerce which was interested in developing and maintaining a wholesome agricultural status in the territory contiguous to the city. The man who realized this relationship was Byers H. Gitchell, secretary of the chamber. John H. Barron began his work as county agent on March 20, 1911.

The county agent at first had no other purpose than to bring to the farmer the results of scientific study and by contact and demonstration to induce him to use such information. These agents, originally responsible to the United States Department of Agriculture and the State agricultural colleges, were in many localities soon supported largely by local groups of farmers and often by local chambers of commerce. Even before the war these county bureaus or committees had begun to take an active part in the work directed by the county agents. Acceleration of this movement gave the farmers of the United States a nation-wide series of organizations which could be brought together into a national federation. Before the end of the war the county farm bureau leaders in several states had formed state organizations. The first was formed in New York in 1917; the second was organized in West Virginia in the same year.

In 1919 the president of the New York State Federation of County Farm Bureau Associations called a meeting of the state federations then in existence. Twelve states were represented at the meeting held in February in Ithaca, and the preliminary steps in the organization of the American Farm Bureau Federation were taken. A meeting for final organization was called to convene at Chicago in November 1919.



1.9  
ag 81 Eh

April 1935

THE GRANGE

Everett E. Edwards

RECEIVED  
★ JUN 21 1935 ★  
U. S. Department of Agriculture

The Grange, or Patrons of Husbandry, was founded in 1867 by Oliver Hudson Kelley and six associates, all but one of whom were Government employees in Washington, D. C. The purpose as emphasized by the founders was to give American farmers opportunities for social intercourse and intellectual development.

During the agricultural depression of the seventies the Grange grew rapidly. From the spring of 1873 to the fall of 1874 the number of local granges rose from 3,360 to 20,365, most of them being in the Middle West and in the South. It was during this decade that the Grange gave its name to and became a significant factor in an agricultural uprising, the Granger Movement. In essence the movement was a revolt against the rapidly growing industrialism which threatened the pioneer democracy of America. The grange as an organization was nominally non-political, but it served as a medium of organization and discussion and prepared the way for the rise of independent, anti-monopoly farmers' parties in eleven western states. The main result of this political upheaval was the acts regulating railroad rates in Illinois, Minnesota, Iowa, and Wisconsin. The testing of these laws before the United States Supreme Court in the "granger cases" laid the basis for future railroad regulation.

The early Granges established purchasing agencies and cooperative stores in an effort to eliminate middlemen. Some of these cooperatives did a large business and were successful for a time. Opposition of local merchants, together with the inexperience of the Grange agents, hampered these cooperative attempts. The experiments in manufacturing agricultural machinery on a large scale were failures. See Arthur H. Hirsch, "Efforts of the Grange in the Middle West to Control the Price of Farm Machinery, 1870-1880," in the Mississippi Valley Historical Review, 15:473-496 (March 1929). Fear of responsibility for debt led to the disbandment of granges, and in the late seventies the order declined rapidly, especially in those states where it had formerly flourished most vigorously.

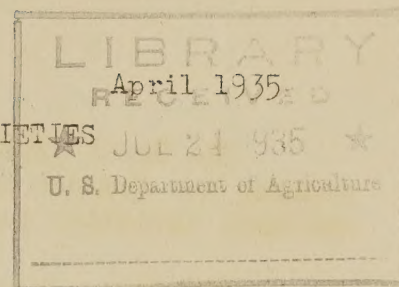
In the seventies and eighties the Grange program was denounced as radical and visionary. Yet the Grange advocacy of railroad regulation, antitrust laws, income taxes, popular election of United States Senators, parcel post, and postal savings banks did much to secure the enactment of measures securing these reforms and improvements. Another contribution of the Grange during its early period was the demonstration of the idea that farmers could advance their interests by organization. The independent political parties associated with the Grange forced the major parties to give more consideration to the farmers' needs. Women had equal rights with men as members in the Grange, and as early as 1874, the Grange endorsed the principle of equal rights for women.



1.9  
ag 81 ch

HISTORICAL SKETCH OF AGRICULTURAL SOCIETIES  
IN THE UNITED STATES

By Everett E. Edwards



Societies of tillers of the soil organized for mutual help and for the study of technical problems of farming existed in the Roman period and also during the Middle Ages. However, it remained for the agricultural revolution to supply the motivation for the organization of agricultural societies as we know them in American agricultural history. The revolution emphasized better agricultural practices and presented a philosophy which glorified agriculture and rural life. The latter basis was most conspicuous in the organization of agricultural societies in France, the former in those of Great Britain.

Agricultural Societies in Europe

The first agricultural society in Germany was organized in 1764. In France, a Society of Agriculturists was organized at an early date; it was succeeded by the Academy of Agriculture in France, which began to issue published proceedings as early as 1761. The French societies were under the influence of the physiocratic philosophy. In Russia, Catherine the Great established the Free Economical Society in 1765, with a large experiment farm near the present Leningrad.

Agriculture was included in the program of the Society for the Encouragement of Arts, Manufactures, and Commerce, organized in London in 1765. In 1777, the Society of Bath for the Encouragement of Agriculture, Art, Manufactures, and Commerce was organized; in 1790, its name was changed to the Bath and West of England Society. Its first volume of Letters and Papers on Agriculture was issued in 1780.

The Society of Improvers in the Knowledge of Agriculture in Scotland was begun in 1723 and continued for over twenty years. Its published record is contained in a volume of Select Transactions (1743). The Highland Society of Scotland, established at Edinburgh in 1785, evolved into a society for all Scotland. Its royal charter was issued in 1787, together with its first parliamentary grant of £3,000, the interest on which was to be used for essays, inventions, and improvements in crops, etc. Its initial volume of "prize essays and transactions" appeared in 1799.

The Dublin Society for Improving Husbandry, Manufactures, and other Useful Arts was organized in 1731 and began to publish Weekly Observations in 1737. It received a government grant of £500 in 1746 and was incorporated in 1750 as the Royal Dublin Society.



The Royal Agricultural Society of Denmark, composed of large-estate owners, was founded in 1769, and the first of the Danish educational agricultural societies was formed in 1810.

All these European organizations, except the Danish educational agricultural societies, were composed of large landholders or professional men rather than actual dirt farmers. The emphasis in practical farming and the everyday problems of rural life developed early in Denmark because of the division of the land into family farms at the end of the eighteenth century.

The early American agricultural societies were much influenced by the societies of Great Britain, both in their organization and the kind of work they initiated and sponsored. Especially important in its influence was the British Board of Agriculture, established in 1793. This organization will be described in connection with the discussion of the development of the United States Department of Agriculture.

The first society in America which gave attention to improving agriculture was founded on Long Island in 1763. Its activities were not confined to agricultural interests, and nothing is known of its activities.

#### Philadelphia Society for Promoting Agriculture

The earliest society in America to make a definite impression was the Philadelphia Society for Promoting Agriculture, formed in 1785. In its early years the American Philosophical Society, organized in 1744 under the leadership of Benjamin Franklin, included many articles containing material on agriculture in its publications. The interest thus created led to the establishment of the Philadelphia Society for Promoting Agriculture in March 1785. To Judge John Beal Bordley, a Maryland planter, is due the credit for beginning this organization. The object was to promote "a greater increase of the products of the land within the American States." With this objective the Society was to offer prizes for experiments, improvements, and agricultural essays, publish memoirs, and promote the establishment of similar agricultural societies throughout the United States. Samuel Powel, two times mayor of Philadelphia and a graduate of the College of Philadelphia served as president until 1805. He was succeeded by Judge Richard Peters who had been a member of the Continental Congress. His estate of 200 acres is now in Fairmount Park. Benjamin Franklin and Timothy Pickering were members. It included such men as George Washington, Robert L. Livingston of New York, and Noah Webster of Connecticut, as honorary members.

In 1794 the society tried to get the Pennsylvania legislature to incorporate "a state society for the promotion of agriculture; connecting with it the education of youth in the knowledge of that most important art, while they are acquiring other useful knowledge suitable for the



agricultural citizens of the state." It also urged the organization of county societies, with county schoolmasters as secretaries. The state society was to establish "pattern farms" in different localities, where foreign and domestic plants were to be tried out. The Philadelphia Society for Promoting Agriculture celebrated its 150th anniversary on February 11, 1935. Professor Rodney H. True's pamphlet, Sketch of the History of the Philadelphia Society for Promoting Agriculture, issued in commemoration of the occasion affords an interesting summary of the history of the society.

#### South Carolina Agricultural Societies

About 1740 a group of planters interested in indigo began to hold meetings. In 1755 this club, the Winyaw Indigo Society, established a charity school and was incorporated to maintain it. The school which existed for over a century, was revived after the Civil War, and finally merged with the Georgetown High School. See the Winyaw Indigo Society, Rules of the Winyaw Indigo Society, with a Short History of the Society and Lists of Living and Deceased Members (Charleston, S.C., 1874. 32 p.).

The South Carolina Society for Promoting and Improving Agriculture and Other Rural Concerns was organized in Charleston on August 24, 1785. Ten years later it was incorporated as the agricultural Society of South Carolina. Many important leaders were members. In 1796 Dr. John de la Howe gave most of his property to the society for an agricultural school for poor boys and girls. The school was erected on his estate and the Society resigned its trust to the State which appointed trustees under whom the school has been continued. See C. I. Walker, History of the South Carolina Agricultural Society (Charleston, 1919. 168 p.).

The Pendleton Farmers' Society was organized in 1815 and chartered in 1817. Its headquarters are in Pendleton, Anderson County, S. C., about 3 miles from the estate of John C. Calhoun, on which Clemson College is situated. Calhoun and many other prominent men were members. The brick building where its meetings were held was built in 1828.

#### Kennebec (Maine) Agricultural Society

The agricultural society, formed at Hallowell, Maine (then part of Massachusetts) in 1787 was probably largely due to the work of Charles Vaughan. Whether the original agricultural society continued for any considerable time is not known. In 1807, the Kennebec Agricultural Society was in existence and was maintained for many years, largely through the influence of Charles Vaughan and his brother Benjamin. They had gardens, nurseries, orchards, and farms, and distributed seeds, plants, and stock and also carried on correspondence.

In 1818, largely through the efforts of the Vaughans, the Maine Agricultural Society was formed. It held one or two exhibitions at Hallowell and then ceased to function, as it was unable to raise sufficient funds.

The Winthrop Agricultural Society was chartered by the General Court of Massachusetts (the legislature) in 1818. It held meetings and exhibitions until 1825. An organization with the same name was incorporated by the Maine legislature in 1829, and this was merged into the Kennebec Agricultural Society in 1832.

#### Early Societies in New Jersey

The New Jersey Society for Promoting Agriculture, Commerce, and Arts was organized as early as 1781, but nothing is known of its work. The Burlington Society for the Promotion of Agriculture and Domestic Manufactures was permanently organized on February 6, 1790, and was active for at least ten years. It furnished prizes for contests in agricultural production and published essays on agricultural subjects in newspapers. The Morris County Society for Promoting Agriculture and Domestic Manufactures was formed in 1792, but its main accomplishment was a library. A second attempt to establish a State society was made in 1818, but it was not permanently organized until 1855.

#### The New York Society

The New York Society for the Promotion of Agriculture, Arts, and Manufactures was organized on February 26, 1791, with Robert L. Livingston as president. It had been preceded by the New York Society for Promoting Arts which had offered premiums for reports on matters considered of interest to farmers in 1766. It was incorporated on March 12, 1792. In 1804 the name of the Society was changed to the Society for the Promotion of Useful Arts. It issued publications and encouraged the formation of county societies. An effort was made to organize a State board of agriculture in 1819. However, it was not until 1832 that the New York State Agricultural Society was organized by the combined effort of the county societies.

#### Massachusetts Society for Promoting Agriculture

The Massachusetts Society for Promoting Agriculture was organized in 1792 under a state charter resulting from a petition signed by twenty-eight prominent agricultural, business, and political leaders. It proposed to promote "useful improvements in agriculture," and it raised money for premiums to do such work. During its first eight years it published many articles in newspapers and pamphlets. In 1801 the publication of a series of papers was begun, and from 1813 these were incorporated in the Massachusetts Agricultural Journal, which was issued



semiannually for a considerable time. In 1801 the society undertook the establishment of a professorship of natural history and a botanical garden at Harvard College. In this, it succeeded in 1804-05. The cooperation with the college continued for twenty-five years. In 1814 the State legislature appropriated to the society \$1,000 annually for printing and circulating its publications on agriculture, the propagating of seeds and of plants, and experimentation. In 1816 an additional \$500 was appropriated for premiums at cattle shows.

### Characteristics of the Early Agricultural Societies

These early agricultural societies in America were a product of "the spirit of improvement" of the years following the American Revolution. Their nature, their purposes, and their program are revealed in their articles of association. They were not designed to be organizations of practical working farmers, but rather groups of men of all professions who were to receive, adapt, and disseminate the knowledge of the progress achieved in other countries.

These "literary" or "learned" agricultural societies were pioneers in the great task of agricultural education. They put before the public accounts of the best agricultural practices abroad and the results of experiments in scientific agriculture by their own members. These societies were failures in reaching the dirt farmers and influencing his practices. Some of the papers published by the societies were reprinted in pamphlet form. In this form Richard Peters's Agricultural Inquiries on Plaster of Paris (1797) and Livingston's Essay on Sheep (1809) were particularly influential.

### Elkanah Watson

In the history of agricultural fairs in the United States reference is made to Elkanah Watson's exhibiting two Merino sheep "under the great elm tree in the public square in Pittsfield," Massachusetts, in 1807. This event is usually regarded as the beginnings of the idea of the "cattle show" as a distinctively American institution. Watson had become convinced that agricultural societies should be organized in counties on a more democratic basis and that their work should be popularized. In August 1810, he issued "an appeal to the public," signed by himself and twenty-eight other farmers, announcing the Berkshire cattle show, for October 1, of the same year.

The following winter the Berkshire Agricultural Society was organized under the presidency of Watson. An extensive cattle show was held on September 24, 1811, which was attended by three or four thousand people. In the following January, Watson arranged for an exhibit of the handiwork of the women of the community. The Berkshire Agricultural Society proved so successful that it served as a model for numerous county societies between 1815 and 1840.

By 1820, according to Watson's claim, agricultural societies on the Berkshire plan were to be found in all the New England States except Rhode Island, and in all the counties of those states, in Pennsylvania, Maryland, Virginia, and North Carolina, and even in frontier Ohio and Illinois. In October 1819, Watson estimated that there were at least one hundred such societies.

### State Aid

The allotment of State funds to county societies was an important factor in their rapid extension in the years from 1817 to 1825. New Hampshire was the first State to extend aid to county societies. In 1817, its legislature granted \$100 to each of two county organizations. The amount was increased in 1818 and divided among five societies. Massachusetts and New York began a liberal program of subsidizing in 1819. Massachusetts offered \$200 annually to every society which should raise and invest a fund of \$1,000 and a proportional sum for greater investments up to \$600 a year. During 1819-1845, Massachusetts expended \$115,800 in this way.

The New York law included a provision, also found in the New Hampshire law of 1820, for the establishment of a state board of agriculture to be composed of the presidents of the county agricultural societies or delegates chosen in their stead. This board was to publish an annual volume of essays and reports. Thus, an objective of the earlier group of societies was continued.

In Pennsylvania a State agricultural society, incorporated in 1823, with state aid did work similar to that of State boards.

### Decline

In 1822 New Hampshire repealed its state aid law, and all of its societies disappeared within a few years. In New York the movement collapsed with the withdrawal of state funds. By 1830 only one county, Jefferson, still had an agricultural society. Only a few continued in Connecticut and Pennsylvania after 1825. State aid was continued in Massachusetts and accordingly did a number of the county societies, but no new units were organized between 1823 and 1839. In newer states like Ohio and Maine a few new societies were established. A revival of interest was evident in a few counties in New York at the end of the thirties.

The societies of this period should be related to the various reform movements of the time.



## The United States Agricultural Society

In 1852 twelve state agricultural societies formed the United States Agricultural Society, an organization designed to coordinate the work of county as well as state organizations. Its membership included farmers as well as men prominent in political life. It met annually and sponsored national exhibitions and field trials. Its influence was powerful in the establishment of the United States Department of Agriculture in 1862. The United States Agricultural Society existed until 1881.

## Post-Bellum Period

After the Civil War the pressure of new economic problems caused farmers to turn to a new type of society, such as the Grange and similar organizations. Those have been discussed in the consideration of the farmers and political activity.

Subsequently, with the increase in scientific knowledge and the growth of specialized farming, differentiation into technical agricultural societies on the basis of the crops or livestock raised took place. Horticultural societies have existed since 1829. In some states they succeeded in establishing boards of horticulture comparable to the boards of agriculture.

In the last quarter of the nineteenth century interest in pure-bred livestock led to the organization of numerous breed associations, to promote the improvement of the respective breeds and also a public interest in them. These societies maintained registries of the pure-bred stock of the respective breeds. Today there are about two hundred such organizations.

Societies were also organized for specialists in various field crops, as, for example, vegetables, fruits, nuts, and similar products.

Various technical organizations, such as the American Society of Agronomy and the American Farm Economics Association are composed chiefly of college teachers and research workers.

State agricultural societies continue to exist, but they are less influential than in the previous century. Most of the county agricultural societies have disappeared, and the county farm bureaus and units of the Grange and the Farmers Union have taken their places. Local farmers' clubs, organized since 1900, place their main emphasis on community improvement.





1.9  
44574h

April 1935  
U. S. DEPARTMENT OF AGRICULTURE

## HISTORICAL SKETCH OF SUGAR-BEET PRODUCTION

Everett E. Edwards

The parent of the present sugar beet has been known and cultivated from earliest times. Herodotus mentioned it as one of the plants used to feed the builders of the pyramids. Hannibal found the people of Casilinum growing beets on the town walls. It has been said that the Romans introduced the beet into Gaul. Pliny offered careful rules for their planting and cultivation.

Originally, when grown in southern latitudes, the beet was an annual. When taken north it became a biennial, storing sugar the first year and not producing seed until the second. This change in the plant has taken place under peculiar conditions. The beet is indigenous and has long grown wild in important centers of cane-sugar production,-- in India, Mesopotamia, and along the shores of the Mediterranean. Successful cultivation of the beet for sugar has been chiefly in central and northern Europe.

Contemperaneous with the rise of the sugar beet, the farmers of Europe turned more and more from staples to special commodities, for which the soil and climate of particular regions are peculiarly adapted, or to garden vegetables, dairy produce, and other perishable products.

Sugar is an article which seems to fulfil all the requirements for production at a distance from the market. It is non-perishable, of little bulk, and an article of large and steady consumption. Yet beet sugar has driven cane sugar out of the world markets, and its production is within the most thickly populated districts of Europe. concentrated

Marggraf

In 1590, Oliver de Serres, a Frenchman, recorded the sweet properties of beets. He said: "the juice yielded on boiling is similar to sugar syrup." It was not until 1747 when Andrew Marggraf, a chemist and member of the Berlin Academy of Science, announced the results of certain experiments that the possibility of manufacturing sugar from beets became known.

## Achard

Half a century elapsed. In 1786, one of Marggraf's pupils and a son of a French refugee, Franz Karl Achard, again began to extract sugar from beets. His report was received with astonishment and considerable ridicule. What is probably the first real sugar factory in Germany was built by Achard on his estate at Cunern in Silesia with aid from the Prussian Government. The French Institute investigated the possibilities, but concluded that it would cost 18 cents per pound to produce refined sugar on a commercial scale. See Wilh. Stieba, "Franz Karl Achard und die Fruhzeit der Deutschen Zucker-industrie," in Schmollers Jahrbuch, 52:95-116 (December 1928).

## Development during Napoleonic Period

The extraordinary high price of sugar under the "Continental System" and the direct aid from Napoleon and others put the industry on a paying basis for the first time. Between 1808 and 1814 a number of factories were started in France, the Germanies, and Austria. Those of the Germanies and Austria disappeared. A few survived in France because of a high import duty and the aid of eminent chemists. The industry was reintroduced in the Germanies, Austria, and Russia during the third and fourth decades of the nineteenth century. It was also introduced into Belgium. (See R. G. Blakey, The United States Beet-Sugar Industry and the Tariff, p. 17-31).

## Early Attempts in the United States

The production of beet sugar in the United States did not become important until the end of the nineteenth century. In 1830, a Philadelphia company, headed by John Vaughn and James Ronaldson, attempted to start a sugar-beet industry. In 1838 and 1839, David Lee Child organized the Northampton Beet Sugar Company at Northampton, Massachusetts. He investigated growing and manufacturing in Europe and later published a small tract on the subject. His estimates of the cost of growing in the Connecticut River Valley were probably somewhat optimistic. Although Massachusetts offered a bounty of 3 cents per pound he discontinued his project after he had produced 1,300 pounds of sugar. In a report in 1838 the Committee on Agriculture under the United States Commissioner of Patents declared "they are induced to believe that no country in the world is better adapted for the production of sugar beets than most parts of the United States." The next year the Committee on Manufactures made a report on the same subject.

In 1852, Brigham Young obtained machinery from France and tried to produce beet sugar in Utah. The outfit cost \$12,500 in Liverpool. It took fifty-two ox teams four months to haul this machinery from Fort Leavenworth, Kansas, to Provo, Utah. These efforts were abandoned in 1858.



In 1863, the Gennert brothers, formerly of Braunschweig, Germany, built a factory which was operated for five years at Chatsworth, Illinois, followed by one year at Freeport. Lack of practical knowledge, unsuitable soil, and bad weather have been given as the reasons for the failure. Some of their equipment was taken to Black Hawk, Wisconsin, for the use of a cooperative company, but it also failed.

#### Initial Successes in the United States

In 1866 two Germans named Otto and Bonesteel built a factory at Fond du Lac, Wisconsin, and had considerable success for two years. In 1879, their plant was moved to Alvarado, California, a San Francisco company having raised \$250,000 to finance it. This factory was in operation from 1870 to 1876. A year or so later the factory was opened again and has been in operation ever since. During the sixties and seventies most of the States offered bounties or tax exemptions, or both, and also carried on experiments. Attempts were made at Edgemoore, Delaware (1877), Rio Grande, New Jersey (1879), Edgemoore, Maine (1896), and other States during these years. The failures were due to the lack of experienced beet raisers, the poor quality of beets, imperfect machinery, mistakes in locating factories, and general lack of interest in the industry. Careful study would probably also reveal that geographical conditions, notably sunshine, were an important factor.

Until 1888, the Alvarado factory was the only one which continued permanently. In that year, Claus Spreckels, the Hawaiian sugar king, built a factory at Watsonville, California, the second successful one in the United States. Ten years later it was replaced by a new factory fifteen miles away and is one of the largest sugar factories in the world.

#### After the McKinley Bill of 1890.

A large sugar combination was organized in 1887. Henry T. Oxnard made a study of the beet sugar industry in Europe. In 1888, he, with his brothers, Robert, James G., and Benjamin, and the New York Cuttings, organized a corporation which built a factory at Grand Island, Nebraska, in 1890. See Esther S. Anderson, "The Beet Sugar Industry in Nebraska," in Economic Geography, 1:373-386 (October 1925). In 1889, Henry T. Oxnard appealed to Congress for protection of beet sugar. The McKinley Bill included a manufacturer's bounty of 2 cents on each pound produced. Beet seed and sugar machinery were on the free list. At this time and later, Nebraska and other States offered bounties. The Oxnard company built a factory at Norfolk, Nebraska, in 1891, and also one at Chino, California. A factory was built at Lehi, Utah, in the same year. At the end of this period, the question of the constitutionality of the State and Federal bounties was raised. In the Wilson-Gorman Tariff Act of 1894 an ad valorem duty of 40 percent was substituted for the bounty and the new device gave much less protection.

## Progress in Europe

During these years when the beet sugar industry was having a difficult time in the United States, it grew by leaps and bounds in Continental Europe. There economists and agronomists had become convinced of the wonderful effect of the growing of sugar beets in increasing the yields of other crops through the rejuvenating of worn-out soils. Europe became self-sustaining and was able to export sugar in considerable quantities. High tariff walls protected beet sugar from tropical cane sugar. Export bounties and subsidies made it possible for sections of Continental Europe to export sugar to Great Britain at a price below the cost of production and still make a large profit. Mindful of the havoc precipitated in her cane-sugar colonies, the British government threatened to prohibit the importation of beet sugar. In 1903, Great Britain brought about the "Brussels Convention," at which all sugar producing countries of continental Europe agreed to abolish the bounty system. The industry continued to expand. At the outbreak of the World War, Great Britain was still dependent on Continental Europe for more than 75 percent of her sugar needs. The British in turn, announced a bounty of 4 1/2 cents per pound on all beet sugar produced in the British Isles. This resulted in the production of 26,000 tons in 1924, and 200,000 short tons in 1927.

### Revival in the United States after the Dingley Act of 1897

As a result of the loss of the bounties and the depression no new beet sugar factories were erected until 1897, except one at Menominee Falls, Wisconsin, which failed. The Dingley Tariff provided for a duty of \$1.95 on refined and \$1.68 1/2 on 96 degree centrifugal sugar, and a new period of expansion began. Twenty-four new factories were begun within two years, but one-half of these failed. Most of the successful factories were in Michigan and California. For a summary of factory construction during 1897-1908 see R. G. Blakey, The United States Beet-Sugar Industry and the Tariff, p. 38-41.

In 1902, a 25 percent reduction in duties and other favors was given to the sugar industry in the Philippines. The next year sugar from Cuba was given a 20 percent concession in the American tariff rates. Imports of sugar from the American insular dominions have increased from 313,381 short tons in 1900 to 1,881,115 tons in 1927. The American import of sugar from Cuba has grown from less than 500,000 short tons in 1902 to 3,600,000 tons in 1927. Cuba has practically shut out all other foreign sugar from American markets.

During 1903-1913, a number of new beet-sugar factories were built, chiefly by those that had already invested capital in the industry. By 1913, there were 78 factories, scattered in 16 States. The annual production was over 700,000 tons.



In 1913, the Underwood Tariff Act reduced the duty on sugar 25 percent, effective March 1, 1914, and provided for free sugar beginning May 1, 1916. Seventeen of the seventy-eight factories were idle during 1914. The outbreak of the World War forced up the price of sugar. In 1916, just before the date when sugar was to be placed on the free list, Congress repealed the free sugar clause of the Underwood Tariff. In 1917, fourteen new factories were opened; there were 98 in operation at the end of 1917, with a production of 761,000 tons.

Today there are 102 beet sugar factories in the United States. Some of these are the largest in the world. In the early history of the beet sugar industry in the United States, 10 to 60 tons was the average capacity of a beet sugar factory. Today, it is from 300 to 350 tons of beets. In 1927 the production was over one million tons, as compared with 45,000 in 1896.

\* \* \*





1.9  
Ag 81 ch  
SUMMARY OF THE HISTORY OF AGRICULTURAL EDUCATION

Everett E. Edwards

LIBRARY  
RECEIVED

★ JUL 24 1935 ★  
U. S. Department of Agriculture

The availability of the late Dr. A. C. True's "History of Agricultural Education in the United States, 1785-1925," issued by the United States Department of Agriculture as its Miscellaneous Publication 36 (Washington, Govt. Print. Off., 1929) and of the extensive list of references on the subject in Miscellaneous Publication 84, p. 209-214, obviates the necessity of a detailed discussion of agricultural education. The consideration here given is only an attempt to point to the more significant factors in the history of agricultural education.

In its formal aspects, as a phase of technical or vocational education through the medium of schools, agricultural education is a relatively new discipline. The beginnings of informal education in agriculture evolved centuries ago out of experience and the concepts of the ancients concerning the nature of the world and of animal and plant life.

Modern science began in the sixteenth and seventeenth centuries as a part of the Renaissance, but a long time elapsed before it came to have significance for agriculture. The University of Halle, founded in 1694, was a pioneer in new methods and subjects, including the beginnings of the natural sciences. John Locke, Jean Jacques Rousseau, Johann Heinrich Pestalozzi, and Philipp Emanuel von Fellenberg contributed to the progress of education in natural science and to the development of schools, using farming and gardening as a basis. A number of important agricultural schools were established at the end of the eighteenth and during the early years of the nineteenth century: in Hungary at Zarvas (1779), Nagy-Micklos (1786), and Keszthely (1797); in Bulgaria at Tirnova (1791); in Germany at Möglin (1806), Tharandt (1811), and Hohenheim (1818); in France at Grignon (1829).

The development of science in relation to agriculture led to the rise of agricultural education. Of special significance were the researches of the following in agricultural chemistry: Sir Humphry Davy (1778-1829) of London; Jean Baptiste Boussingault (1802-1887) of Paris; and Justus von Liebig (1803-1873) at Giessen and Munich. See Dr. A. G. McCall's, "The Developments of Soil Science," in Agricultural History, 5:43-56 (April 1931). Of similar importance was the work of Carolus Linnaeus (1707-1778) at the University of Uppsala. During these same years, geology and zoology became recognized as distinct fields of science. The development of a body of literature on agricultural subjects during the seventeenth and eighteenth centuries also prepared the way for agricultural education.



The progress of agricultural education and experiment in Europe during the first half of the nineteenth century afforded the examples and the stimulus for its development in the United States. The work of the manual labor schools of Tellenberg, at Hofwyl, Switzerland, led to similar institutions in the United States. Between 1819 and 1840 a considerable number of schools with agriculture and mechanical arts as the main object were organized. Many of these were short lived, but they prepared the way for the later success of similar institutions.

Agricultural societies were the main agencies by which the leaders of America were brought to see the need for experimentation and demonstration in agriculture, the development of an agricultural literature, and the organization of schools and courses in agriculture. The agricultural fairs also served as important educational agencies, especially in their work of improving livestock. Agricultural periodicals supplied the farmers with useful information on agriculture and turned the attention of farmers and others to the need of institutions for teaching the theory and practice of agriculture.

Before 1850, a few chairs of natural history, of agricultural chemistry, and even of agriculture as such had been established in some of the colleges. These efforts also prepared the way for agricultural education in the formal sense of the term.

The first of our present agricultural colleges was chartered by act of the Michigan legislature on February 12, 1855.

The Morrill or Land Grant Act of July 2, 1862, stands out as the most significant legislation for agricultural education in the United States. It provided grants of land to the states and territories, based on their representation in Congress. The proceeds from the sales of these lands were to be invested and the income used to create and maintain institutions, organized to give instruction in agriculture and mechanical arts. There was to be at least one such school in each State. These colleges have become the main centers for higher education and research in agriculture and the mechanic arts. These schools encountered many difficulties during their early years. There were few qualified to teach the natural sciences and practically none prepared to teach agriculture. Most of the available textbooks were of European origin, and their contents had not been proved by American examples. The depressed condition of agriculture following the Civil War was far from being an incentive for young people to take a college course in agriculture. For about thirty years, many remained skeptical of the usefulness of the agricultural colleges. Yet it was during that time that the foundations for their present role were made; teachers were being trained, equipment assembled, texts written, and the economic and scientific value of these schools demonstrated to the general public.



Additional financial aid was afforded the agricultural colleges by the Second Morrill Act of 1890 and the Nelson Act of 1907. From the first, the State legislatures have also provided State funds. At the present time the chief source of support of most of the schools is the State appropriation.

From the beginning of the agricultural colleges it was recognized that they could be successful only if experiments and scientific investigations were carried on to provide a body of tested knowledge.

Agricultural experimentation in Europe and America was begun by individuals and promoted by agricultural societies. Much was said of George Washington's experiments during the bicentennary in 1932. The activities of Benjamin Franklin, Thomas Jefferson, and others may well also be emphasized. The New York Agricultural Society founded a chemical laboratory in 1849. The Maryland legislature established an agricultural college in 1856 and included provision for experimentation on a college farm. Research, including field experiments, early became part of the work of the United States Department of Agriculture, established in 1862.

The organization of experimental work was underway by 1870. The establishment of agricultural experiment stations was recommended at a convention of representatives of the agricultural colleges called by the United States Commission of Agriculture in 1872. The first formal agricultural experiment station was established at Middletown, Connecticut, in 1875. Within ten years sixteen other States had done likewise. The Hatch Act of 1887 granted \$15,000 to each state and territory for the support of experiment stations "to conduct original researches or verify experiments...bearing directly on the agricultural industry of the United States...having due regard to the varying conditions and needs of the respective states and territories."

The national system of State experiment stations operates under the coordinating direction of the Office of Experiment Stations of the United States Department of Agriculture, which also administers the nationally financed stations in Alaska, Guam, Hawaii, Puerto Rico, and the Virgin Islands. The Office of Experiment Stations also serves as a clearing house for agricultural information for the United States and foreign countries. Its principal organ, the Experiment Station Record, has reported the status, progress, and needs of research since 1889.

The Adams Act of 1906 provided an additional \$15,000 for experiment station work in each State. The Purnell Act of 1925 broadened the field of research to include agricultural economics, home economics, and rural sociology, and increased the support until the amount received by each state aggregates \$90,000.



The agricultural colleges grew rapidly during the first fifteen years of the present century. The enrolments greatly increased, apparently in response to the improved condition of agriculture and its expansion and movement toward diversification. The teaching and research became more and more specialized. Post graduate courses were organized for prospective teachers and scientists. Since the World War the attention has been turned particularly to the economics of agriculture.

Soon after their organization the agricultural colleges undertook to help the farmers in their problems by addresses before agricultural societies and fairs and by articles in the agricultural periodicals. About 1870, the farmers institute movement was begun. At the institutes, members of the college faculties and others similarly trained gave popular instruction in agriculture. The first of these were in Kansas and Massachusetts. Organized extension teaching dates from 1892 and has come to include lectures, short courses, correspondence and reading courses, publication of bulletins, field experiments and demonstrations, fair exhibits, and radio broadcasts. A movement for Federal aid for extension resulted in the Smith-Lever Act of 1914. It required that the States provide funds equal to those proffered by the Federal Government. To the extension service field force there has ultimately been added county agricultural agents, home demonstration agents, and boys' and girls' club supervisors.

Practically all of the practical schools of agriculture established in the first part of the nineteenth century had disappeared by 1860. The agricultural colleges offered courses of secondary-school grade during their early years. With the beginning of the present century there came a new movement to encourage nature study, agriculture, and gardening in the elementary schools. By 1915 the teaching of agriculture in public rural elementary schools was required in twenty-two States and was actually offered in some schools in practically all of the States.

The realization that the agricultural colleges were destined to become primarily centers of investigation and training of experts led to efforts to provide secondary instruction, either in special agricultural schools or in the high schools. Between 1880 and 1915 considerable experimentation was carried on with various types of schools and ultimately there emerged the system of departments of agriculture in the public high schools. The most stimulating factor in this movement was the Smith-Hughes Vocational Education Act of 1917.

\* \* \* \* \*